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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/693,654	10/20/2000	Gary J. Nehring	7719-078	7281

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EXAMINER

NGUYEN, THUKHANH.T

ART UNIT	PAPER NUMBER
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1722

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DATE MAILED: 11/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/693,654

Applicant(s)

NEHRING, GARY J.

Examiner

Thu Khanh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 7, 14, and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Regarding claims 7, 14 and 26, the phrase "and the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "and the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 9, 15, and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Shuert (5,658,523).

Shuert teaches an apparatus for thermoforming twin sheet material comprising, in combination, a loading station with a first loading frame and second loading frame (40 & 42) for loading first and second panels (22 & 24), one radiant heating station (30, col. 6, lines 8-10), a hot thermoforming station (32) with a male and a female mold (50 & 56), and a cold forming

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station (34, col. 5, line 55), an unloading station (28), a carousel assembly (26) for receiving and transporting the panels between the stations. The apparatus further comprises a drive assembly (84; col. 9, lines 3-14) to rotate the carousel assembly and drive means for raising and lowering the platens (62 & 64, col. 6, lines 36-50).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3, 16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuert (5,658,523) as applied to claims 1-2, 9, 15, and 18-19 above, and further in view of Weisner et al (4,447,200).

Shuert discloses a thermoforming apparatus as described above, but fails to disclose a sensor for sensing sag of the panels.

Weisner discloses an apparatus for molding skylights, comprising a sensor (col. 8, lines 49-52) for sensing the height of the dorm, or the drift of the sheet material, during the molding process.

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Shuert by providing a sensor for sensing the sagging of the sheet material during forming as taught by Weisner, because the sensor would facilitate the control of

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the heating or cooling of the mold during the forming process in order to obtain products having predetermined sizes and shapes.

8. Claims 4, 11 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuert ('523) as applied to claims 1-2, 9, 15, and 18-19 above, and further in view of Walker (4,571,320).

Shuert discloses a rotary thermoforming apparatus, but fails to disclose an insert loading assembly including suction lift cups.

Walker discloses an apparatus for loading and unloading molding sheet (16) between an upper die (18) and a lower die (20), including a loader/unloader fork (24) with a plurality of suction cups (26) to deposit raw sheet material to the mold and to remove the formed product from the mold cavity.

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Shuert by providing a loading/unloading assembly with a plurality of suction cups as taught by Walker, because the suction cups would facilitate the deposit of sheet material and/or removal of the product during the molding process.

9. Claims 5-7, 12-14, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuert ('523) as applied to claims 1-2, 9, 15, and 18-19 above, and further in view of Chun et al (5,814,185).

Shuert discloses a thermoforming as described above, but fails to disclose a locking means to secure the platens together, a drive means that includes a plurality of gear racks

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received within bushing and engaged by spur gear, wherein the locking means including a plurality of bayonet pins with a plurality of bayonet sockets.

Chun et al disclose a twin sheet thermoformer, comprising a drive means for raising and lowering the upper (12) and lower mold platens (14) and a locking means for secure the platens together. The drive means comprises four gear rack support posts (18 A-B), cross shafts (22A-B & 24A-B) each have a pinion gear (30) at each end engaging one of the gear racks machined into the vertical support posts (18 A-B), electric drive motors (20 A-B), drive belts (26), pulleys (28), and rotary bearings (44). The locking means includes a plurality of bayonets (34A-B), coupling mechanism (62) having hydraulic cylindrical shafts (64) with locking bolts (66) to lock the upper platen to the lower platen (col. 4, lines 4-14).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Shuert by providing a platens driving means and locking means with a plurality of gear racks and bayonets as taught by Chun et al, because these means would enable a quickly, accurately and uniform adjustments of the locking shafts; thus, create a uniform clamping force between the mold platens.

10. Claims 8, 10, 17, 20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuert ('523) as applied to claims 1-2, 9, 15, and 18-19 above, and further in view of Brown (3,925,140).

Shuert fails to disclose a plurality of air bladders disposed between the mold and the platen, a second heating station, and actuators coupled to the clamp members.

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Brown discloses an apparatus for twin sheet thermoforming, comprising a turntable (C) supporting a loading/unloading station (11), first and second heating stations (12, 13), forming station with upper mold and lower mold (19, 20) disposed on upper and lower platens (38, 52), a plurality of air-expansible bladders (63) provided between the lower platen and the lower mold to control the clamping of the lower to the upper mold (col. 5, lines 28-38), and a plurality of clamping cylinders (26) for controlling the clamping of the sheet to the frames during the molding process.

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Shuert by providing a plurality of air bladders in between the molds and the platens, a second heating station and a plurality of clamping cylinders as taught by Brown, because the air bladders would facilitate the closing of the upper and lower molds, while the cylinders would control the clamping of the sheet material by the mold frames, and the second heating station would heat the second sheets material while the first sheet materials are heated at the first heating station ; thus, the second heating station would decrease the processing time.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Khanh T. Nguyen whose telephone number is 703-305-7167. The examiner can normally be reached on Monday-Thursday and on alternate Friday, 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jan H. Silbaugh can be reached on 703-308-3829. The fax phone numbers for the


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organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

TN

November 5, 2002



JAN H. SILBAUGH
SUPERVISORY PATENT EXAMINER
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11/15/02